Sustainable supply chain management

Exploring the Potential for Sustainability Innovations

Sustainable supply chain management can drive sustainability. The interpretation of Sustainable supply chain management as an upstream-oriented strategy has an important, but limited potential. Addressing consumer needs and lifestyles downstream can increase the sustainability potentials of Sustainable supply chain management. By Justus von Geibler

Sustainable supply chain management (SSCM) can be understood as "the management of material, information and capital flows as well as cooperation among companies along the supply chain while integrating goals from all three dimensions of sustainable development, i. e., economic, environmental and social, which are derived from customer and stakeholder requirements. In sustainable supply chains, environmental and social criteria need to be fulfilled by the members to remain within the supply chain, while it is expected that competitiveness would be maintained through meeting customer needs and related economic criteria" (Seuring/Müller 2008, p. 1700).

Chain actors which exert a leading and coordinating position within a value chain and which are able to set parameters in the entire supply or value chain are called lead agents or lead firms. They have the capability to control and coordinate other parts of the value chain.

Why Sustainable supply chain management?

SSCM has gained increasing recognition in industry and companies. According to an online survey by Delaye et al. (2014), which was conducted in June 2013 with members of the global APICS membership, 76 percent of responding operation professionals say their company's focus on a more sustainable supply chain will increase over the next three years. The survey specifies the following reasons for companies to engage in SSCM: Manage reputational risk, reduce cost, improve quality and continuity of supply, increase revenue and innovate products and services.

This article addresses the last mentioned reason – to innovate products and services – and discuss the potential of SSCM to drive sustainability innovation. Starting from theoretical views on SSCM and sustainable innovation, the sustainability potential of SSCM strategies is discussed. Finally, conclusions are drawn on the quality of a proactive SSCM strategy.

Two different strategies of SSCM

Based on a literature review on SSCM and analysis of influential factors the authors Seuring and Müller (2008) have identified two norm strategies for SSCM. The first one is labelled as "supplier management for risks and performance". To encourage companies to follow this strategy and helping them to overcome the fear of an image loss in case of upraising problems by the suppliers, there is a need for environmental and social standards for companies (Seuring/Müller 2008). In this way, the strategy is an upstream-oriented, typically less demanding approach to SSCM. The second usually more proactive strategy has been called "supply chain management for sustainable products". This usually demands the definition of life-cycle based standards for the environmental and social performance of products. These standards are then implemented throughout the supply chain. The ultimate aim of this life-cycle wide strategy is to satisfy customers and gain a competitive advantage (Seuring/Müller 2008).

Seuring and Müller (2008: 1705) describe both the strategies as not mutually exclusive: "While they emerge as two different, distinguishable approaches, their relation to each other might be called ambivalent, thereby opposing but also supporting each other at the same time."

Potential of SSCM strategies and Pitfalls

The above mentioned SSCM strategies will be discussed in the following with regard to their potential for sustainability innovations, referring to a definition of sustainability innovations and innovation types.

Fichter (2005: 138) defines sustainable innovations as implementation of technical, organisational, utilisation system related, institutional or social innovations that contribute to the preservation of critical natural assets and global and long-term transferable system of economy and consumption. Three types of innovations have been described by Hansen et al. (2009) with an increasing sustainability potential:

- Technological innovations, a basic innovation type referring mainly to technological and product innovations.

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- Product-service systems (PSS) are combinations of products and services and are thus related to non-technological innovations helping to improve characteristics in the use and end-of-life phase.
- Business model innovations mean that companies develop entirely new ways of doing business, often involving cultural adaptations of customers.

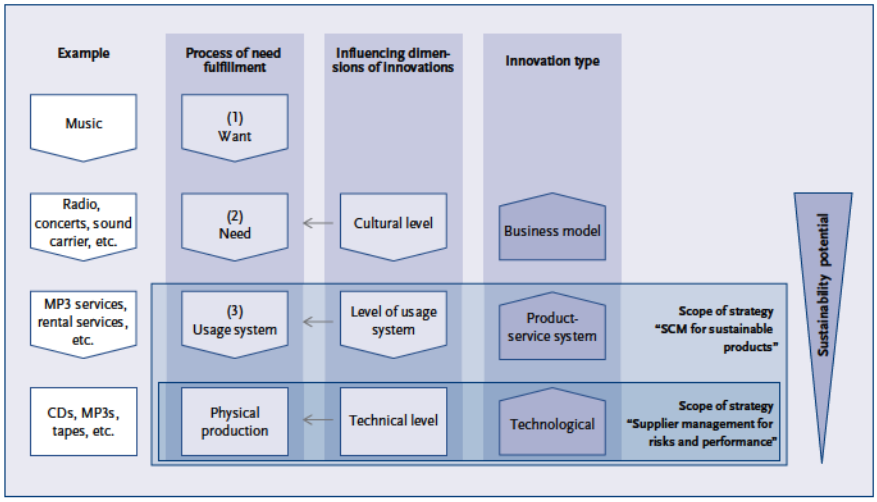

Figure 1: The link between SSCM strategies, innovation type and need fulfilment process
(Own illustration based on Hansen et al. 2009, S. 693; referring to Paech 2005)

Supplier management by lead firms can lead to implementation of important sustainability standards upstream and to more efficient products. However, their production is still linked to natural resource use and related negative impacts. In addition there are limited effects to change consumer behaviour (Geibler et al. 2013). To go beyond the technological and product related improvements, it is important to consider the process of fulfilling customer needs (Hansen et al. 2009: 692, referring to Paech 2005): "Whilst on a technical level, needs are satisfied through new (more sustainable) physical products, on the level of usage patterns, products and services describe new routines of how needs are fulfilled. On the cultural level, needs are changed or new types of needs are created" (Hansen et al. 2009: 692).

Against this background, the strategy of supply chain management for sustainable products can move beyond the technological level. If customer's product use is addressed and new PPS are supported, the strategy can also help to improve characteristics in the use and end-of-life phase. By changing current lifestyles and ways of fulfilling the given customer needs, innovations and related supply chain strategies may have significant potentials for improving sustainability effects by developing alternative solutions to customer demands (Geibler et al. 2014) (e. g. a train or bus company purchasing vehicle and fuel could also satisfy the need for meeting people by providing some form of video conferences). Still, the strategy is limited as it does not tackle an underlying cause of negative sustainability impacts – namely, the culture based on which customer change their needs (Liedtke et al. 2015). To exploit related higher sustainability potentials "companies have to tap into new ways of doing business, that is, to innovate their business models (Chesbrough, 2007)" (Hansen et al. 2009: 693).

Conclusion

SSCM can be an important driver for sustainability innovations. The two identified SSCM strategies influence the value chain in different life cycle phases and thus have different sustainability potentials. If SSCM is seen as an upstream-oriented strategy it has an important, but limited potential. When SSCM strategies challenge customer demands and current ways of need fulfilment the solution space for more radical innovations and scope of SSCM's potential increases. In the concrete case, the lead firms have to balance the opportunities with the innovation's market risk.

Literature

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